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To: Bill Smith - Regional Director, Northern Region

From: Scott B. Bunde
Fisheries Technician, Park Falls

Subject:
1998 Lake Survey Summary – South Twin Lake, Taylor County
(T32N, R01W, sec. 12; WBIC - 2193900)
Upper Chippewa Basin GMU

This report is submitted with the approval of Basin Supervisor (GMU Team Leader), Bruce L. Swanson and Regional Fisheries Expert, Steve AveLllemant. The report was written by Scott Bunde, Fisheries Technician under the Chequamegon and Nicolet National Forest contract fisheries program. Field work was supervised and the report reviewed by Thomas (Skip) Sommerfeldt, contract Fisheries Biologist.

APPROVED BY:

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Bureau of Fisheries and Habitat Protection	Date

cc: Bureau of F & H Protection
Park Falls DNR (Skip)
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EVALUATION SUMMARY

South Twin Lake is a 29-acre softwater seepage lake that contains a fishery of mainly largemouth bass and bluegill. A fishery survey done in 1990 found largemouth bass were still the dominant gamefish, but the presence of walleye (1986 & 1987 year classes) had become a concern. Largemouth bass numbers had increased over the 1982 survey but fewer fish greater than 12 inches were found (table 1). Angler harvest was the suspected cause for the low number of quality size fish (≥ 12 inches). The bluegill fishery in 1990 had declined in abundance, but the size structure and growth rates had generally improved from the 1982 survey. The 1990 bluegill population was considered good in quality.

The management objectives for South Twin Lake in 1990 were to improve the quality of the bass population and maintain a good quality bluegill fishery. This was to be accomplished in several ways and they included: (1) protect bass populations from heavy angler harvest by imposing a 15-inch minimum length, 2 daily bag limit; (2) the installation of 16 log fish cribs and 12 tree drops to increase woody cover; (3) monitor the status of the fishery every 3 years and alter management direction as situation dictates.

This report summarizes the initial results of these latest management efforts. Electrofishing runs in May of 1993 and 1995, along with a full survey in 1998 gathered the fisheries data used for this evaluation. The full survey in 1998 consisted of May and September electrofishing runs along with twelve fyke-net days in July. The following conclusions / summations were made after analysis of this data and field observations.

- 1) The regulation change (15 inch, 2 bag) went into effect in 1992 and resulted in an overall increase in bass abundance by 1998. There were a greater number of bass larger than 12 inches and a small increase in bass over 15 inches. Bass size structure was truncated at 15 inches with most fish stockpiled in the 8 – 14 inch size range in 1998.
- 2) Growth rates for bass were better in fish greater than 12 inches and slightly slower in fish less than 12 inches. Growth rates for all bass were less than statewide average (Figure 1).
- 3) Remnant walleyes were still present in low numbers from what is believed to be an unauthorized stocking in 1986 and 1987 (Table 1). No additional stocking appears to have taken place and numbers should continue to decline with little effect on the fishery.
- 4) Electrofishing runs show a steady increase in the bluegill abundance in South Twin Lake. Bluegill numbers have more than doubled since 1990 survey and have increased almost 7 – fold since survey in 1982 (Table 2). The 1998 fyke-net data showed a slight decrease in abundance. This discrepancy is believed to be due to the abnormally high water temperatures. These temperatures resulted in fish being suspended in deeper water and not vulnerable to our sampling gear.

- 5) Fish cribs (17) and tree drops (12) installed from 1988-1991 are being heavily utilized by all species present. Most structures appear to be in good shape. The Birch tree drops lost most of their small branches to beaver feeding shortly after being cut, but most trees were holding up well four years after installation.

SUMMARY/DISCUSSION

The regulation change in 1992 and installation of fish cribs and tree drops from 1988-1991, resulted in an over 4-fold increase in bass abundance. The regulation, coupled with angler harvest, also appeared to have stock-piled bass under the 15 inch size limit. The increased abundance of fish under 15 inches has also resulted in slightly slower growth rates. The bluegill population appeared to have increased in abundance, with size structure improving slightly, but growth rates slowing down.

Survey efforts in 1998 gave ambiguous results in regard to the bluegill population. Spring shocking indicated an increase in both abundance and PSD₆ value from 1990. The fyke-net data, however, indicated a slight decline in abundance from 1990 to 1998. Water temperatures during the 1998 fyke-net survey were abnormally high (77-81°F). Some fish that were observed during the netting survey appeared to be stressed from the warm conditions and most fish were suspended in the deeper, cooler water not susceptible to our survey gear.

It was felt that a better size distribution of bass must be obtained in South Twin Lake to achieve and maintain a balanced fishery. Bass over 14 inches need to be protected and the abundance of bass less than 14 inches should be somewhat reduced. Therefore a more specific regulation needs to be imposed and a protected slot regulation should be implemented. The protected slot should be 14 to 18 inches and the daily bag limited to 3 fish.

MANAGEMENT RECOMMENDATIONS

- 1) Manage South Twin Lake as a largemouth bass and bluegill fishery. Specific management goals are as follow:
 - a) Largemouth Bass Replace 15 inch / 2 daily bag regulation with new regulation of 14 to 18 inch protected slot / 3 daily bag. This should ease stock-piling and allow a more even size distribution. Improve spring PSD₁₂ to 40% and the RSD₁₅ to 25%.
 - b) Bluegill Maintain or slightly improve PSD₆ to 40% in summer fyke netting.
 - c) Walleye Discourage any additional stocking and let bass control bluegill numbers. Consider restocking only if bluegill population gets over abundant in future years.

- 2) Maintain and refurbish habitat improvements done from 1988 to 1991. Replace tree drops as they start to deteriorate. Make additional habitat improvements, such as additional cribs and tree drops where seen fit.
- 3) Conduct periodic monitoring of the fishery using spring boomshocker runs every 2 or 3 years.
- 4) Maintain the wild nature of the lake by limiting any further shoreline development and by following the guidelines for riparian management zones as described in "Wisconsin Forestry Best Management Practices for Water Quality" (PUB-FR-093 95).

A skinny walleye from the South Twin Lake survey - July 1988.



Table 1. Comparison of Spring Electrofishing and Summer Fyke Net Catch Statistics
1982, 1990 and 1998 -- South Twin Lake , Taylor County

	1982 Survey		1990 Survey		1998 Survey	
	June 22 Shocker	June/July Fyke	May 29 Shocker	July Fyke	May 26 Shocker	July Fyke
Largemouth Bass						
CPE (28/hour	0.1/net day	88/hour	0.2/net day	397/hour	0.8/net day
PSD12	18%	0	9%	0	24%	10%
RSD15	5%	0	0	0	1%	0
RSD18	5%	0	0	0	1%	0
Walleye						
CPE (#	-	-	0	2.7/net day	3/hour	0.6/net day
PSD15	-	-	0	44%	0	100%
RSD18	-	-	0	7%	0	100%
Bluegill						
CPE (#	70/hour	150/net day	204/hour	29/net day	475/hour	22/net day
PSD6	30%	45%	25%	53%	35%	39%
RSD8	0	2%	0	11%	6%	11%

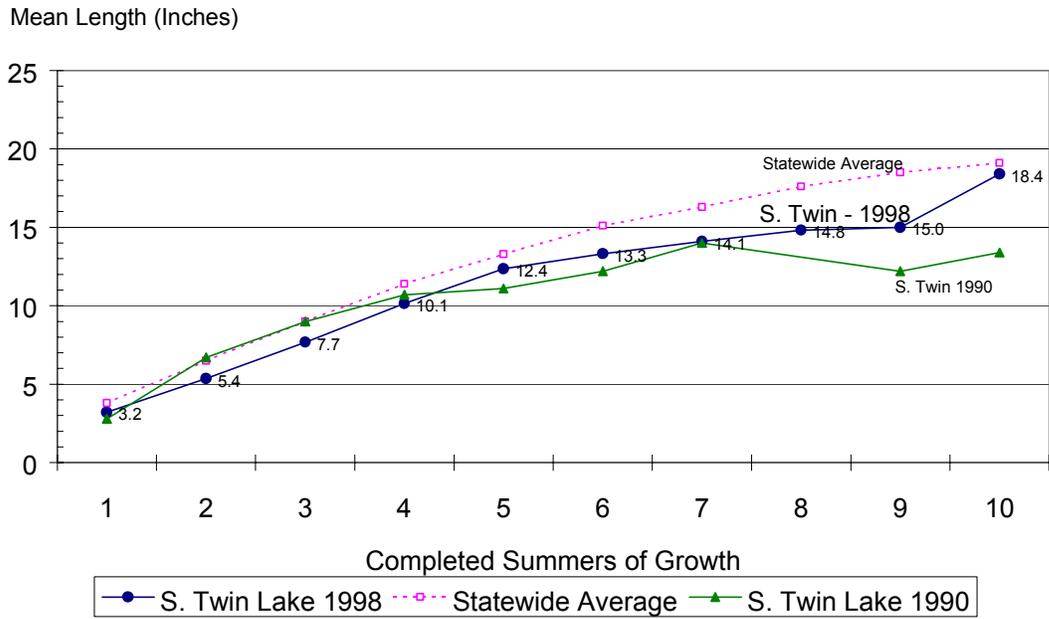
*** Walleyes were first documented in South Twin Lake in 1990 survey (1986 and 1987 year classes).

Table 2. Comparison of Spring Electrofishing Catch Statistics
1982, 1990, 1993, 1995 and 1998 -- South Twin Lake , Taylor County

	1982	1990	1992	1993	1995	1998
	June 22 Shocker	May 29 Shocker	New Regulation	May 27 Shocker	May 25 Shocker	May 26 Shocker
Largemouth Bass						
CPE (28/hour	88/hour	15 inch min.	63/hour	150/hour	397/hour
PSD12	18%	9%	2 fish bag limit	62%	23%	24%
RSD15	5%	0	*	2%	0	1%
RSD18	5%	0	*	0	0	1%
Walleye						
CPE (#	-	0	*	5/hour	1/hour	3/hour
PSD15	-	0	*	100%	100%	0
RSD18	-	0	*	25%	100%	0
Bluegill						
CPE (#	70/hour	204/hour	*	200/hour	250/hour	475/hour
PSD6	30%	25%	*	10%	23%	35%
RSD8	0	0	*	0	1%	6%

*** Walleyes were first documented in South Twin Lake in 1990 survey (1986 and 1987 year classes).

**Figure 1. Largemouth Bass Growth Rates
South Twin Lake, Taylor Co.**



**Figure 2. Walleye Growth Rates
South Twin Lake, Taylor Co.**

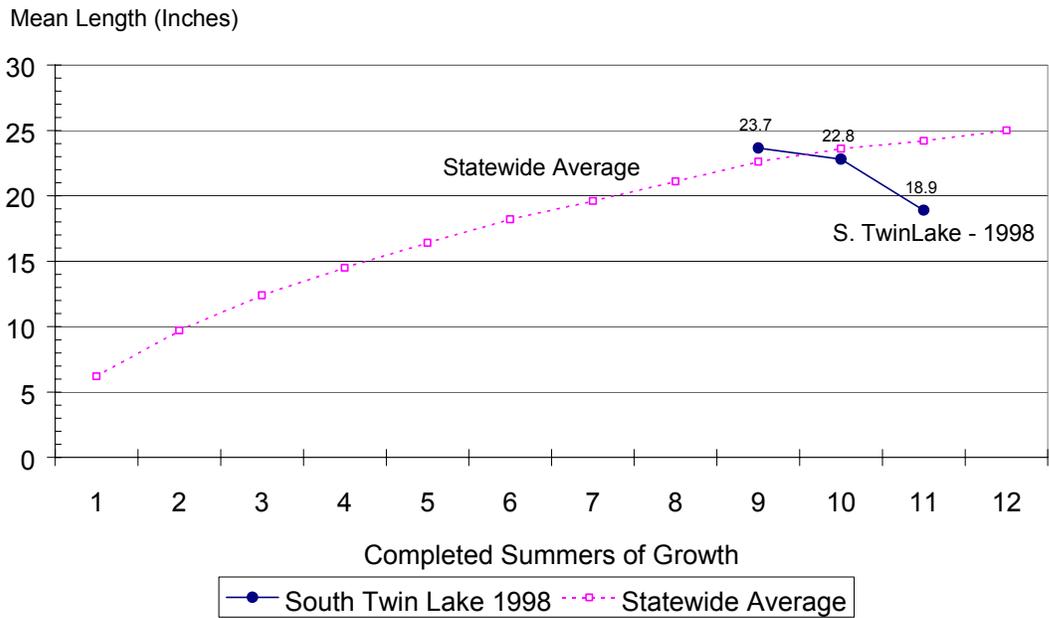


Figure 3. Bluegill Growth Rates South Twin Lake, Taylor Co.

